

RECENTLY PATENTED INVENTIONS.

Railway Appliances.

RAILROAD TIE MACHINE.—Alexander B. B. Harris, Bristol, Tenn. For boring and trimming the ends of metallic ties, this inventor has devised a machine, to rest on a platform car, which will take up the ties by an elevator, finish them, and discharge them, the machine and its engine and boiler being seated on a trolley, so that it may take up and discharge the ties from and to either side of the track. The machine is an improvement on a former patented invention, and planes off the tie to form level, flat seats for the tie plates, at the same time boring holes to receive thimbles of the tie plate and their expanding spikes, and trimming off the ends of the tie to a uniform length and square finish.

STEEP GRADE CAR BRAKE.—Edward Maginn, Pittsburg, Pa. According to this invention a broad, flat, strongly made wooden shoe, of practically the same length as the car, is suspended between the rails, to be lowered into frictional contact with the street surface when desired, and elevated and held suspended without much difficulty. As the shoe falls and is locked in position by pawls the weight of the car and its load is imposed on it, suddenly arresting a car on the steepest grade. The ends of the shoe are rounded, and it is intended they shall project far enough to adapt them to serve as fenders for picking up pedestrians who may fall in front of a car.

Electrical.

ELECTRO PNEUMATIC ORGAN ACTION.—Hermann E. Hobbs, Weston, Mass. For use on electric organs this inventor has devised an improvement to permit the employment of a comparatively weak current to indirectly control the exhaust valve. It comprises a wind chest and a chamber connected with it by ports, there being a pneumatic controlled exhaust valve for the chamber, and an electro magnet whose armature forms a valve for controlling the inlet ports. The valve also controls a leak passage leading from the chamber, and a key is adapted to open and close the circuit for the electro magnets.

ELECTRODE.—Wilhelm Majert, Falkenberg, Germany. In electrodes for storage batteries, this inventor provides an electrode which will not warp or crack, and in which the frame will preserve its original shape. The conducting frame is made with inwardly projecting flanges forming an interior groove, the inner portion of which is occupied by a soluble substance, while the outer portions of the flanges embrace the filling of active mass or paste, the result being that as the mass expands in forming the battery a proper space is allowed to prevent bending or buckling of the frame, the soluble substance being afterward removed by washing the electrode in water.

Mechanical.

BOX NAILING MACHINE.—Paphro D. Pike, Stowe, Vt. For forming and nailing circular boxes for butter, etc., and their covers, this inventor provides a machine by which the rim may quickly turned around and nailed to the bottom portion, and the overlapped ends quickly tacked together. The machine comprises a rotary former and means for holding the bottom of a box in contact with it, a nail carrier with a series of spring-pressed nail holders on its outer side, and a tack holder extending transversely of the carrier, there being also guides for the box material extended above the former and a cutter adapted to operate across the former.

Agricultural.

HAY TRUCK.—Octavus E. Adolph, Bodal, Denmark. After the hay has been raked together by hand, or with a horse rake, it is, according to this invention, stacked upon a truck as the latter is driven along the rows of hay lying on the field, the truck having a slightly inclined bottom, and being so arranged that it can be readily inclined at will, the truck being afterward withdrawn from underneath the stack, which will thus be deposited without changing its form. The truck has a frame supported by two pairs of low wheels, and on an extended back portion is a smaller pair of wheels not ordinarily touching the ground, and doing so only when the truck is tilted to deposit the stack.

CUTTER FOR HAY STACKS.—Hilary J. Twiss, Baker City, Oregon. This cutter is composed of a number of cutting blades detachably connected by links to form a chain of cutters, at each end of which is a handle. In operation the chain of cutters is thrown over a hay stack or rick, when each handle is grasped by an operator and the chain laterally reciprocated as would be a crosscut saw until the stack has been divided as desired into sections suitable to feed from or for forking off the hay.

Bicycles, etc.

SPEED INDICATING ALARM.—Leon G. Anthony, Salt Lake City, Utah. The indicator of this alarm is so arranged that after it is set to indicate a predetermined speed an alarm will be given when such speed is exceeded, thus notifying the rider, the alarm continuing to sound until the speed is reduced. The indicator may be attached to the fork of a bicycle, and has a wheel adapted to engage the tire, and pivoted spring-restrained levers adapted to be swung outward under the influence of centrifugal force to strike a fixed gong. The tension of the spring is regulated by a nut, according to the speed at which the indicator is to be set.

WHEELED VEHICLE.—Emil H. Schellack and Frank Ridenour, Fort Dodge, Kansas. This invention is for a vehicle having three or more wheels and a box body, to be propelled by the rider placing his feet on foot pieces and grasping the hand pieces of vertical plungers, to be alternately raised and lowered by the action of the rider throwing his body from side to side and exerting his weight on the plungers as well as on the treadles. The foot power mechanism and the hand power mechanism engage different sets of cranks on the same shaft, and the machine may be operated either by hand or foot power alone, or by both, the latter method of propulsion being designed to afford great speed.

LAMP BRACKET.—Joseph M. Brown, Nanaimo, Canada. A bracket which may be readily secured to or removed from the frame is provided by this invention. It consists of a band of sheet steel, preferably lined with rubber or cloth, and adapted to engage the steering head or other part of the bicycle, the ends of the band being shaped as eyes, in each of which is a spring tongue, adapted to engage a shoulder or notch in a depending leg of a bracket adapted to engage the lamp. The device is simple, strong and light, and has no lugs, bolts or hinges, being simply sprung into place and as readily removed.

Miscellaneous.

TYPEWRITING MACHINE.—Edward N. Chamberlain, Natchez, Miss. A mechanism is provided in connection with this machine whereby a bill head or letter head may be stamped on the paper before writing upon it, the machine being thus designed to save the expense of printed stationery. The machine is also provided with an adding device, whereby amounts may be quickly added by operating the keys and then impressed upon the paper. Both the adding and letter head printing devices may readily be disconnected, and the machine easily operated as a rapid typewriter of the most improved form.

STAMP AFFIXING MACHINE.—Stephen W. Alarich and Winfield L. Dinsmoor, Portland, Oregon. This invention is for an improvement on a former patented invention of the same inventor, and provides a machine for applying stamps to envelopes or other packages to be mailed, the machine being operated by one hand, leaving the other hand of the operator free for the manipulation of the packages to be stamped. The present patent covers such improvement in the construction of the machine as is designed to render automatic the entire operation of affixing the stamps.

BOOT OR SHOE STRAP.—Georgé E. Shoop, Golconda, Ill. This strap is made of strips of any suitable material laid one upon the other and secured together at their side edges, and a strip of rubber located between the strips, thus constituting a strap which will always remain sufficiently open to admit of the ready and convenient introduction of a finger. The inserted elastic material, acting as a spring, holds the loop of the strap open at all times.

SPRING BED AND FRAME.—Edwin R. Weber, New York City. For use particularly in connection with a metal bedstead, this invention provides a construction whereby the frame may be adjusted to slight variations that are found in the making of the head and foot boards, and also provides simple supporting devices for the springs to prevent them from being bent inward.

PUZZLE.—Joseph H. McCarville, Centerville, Iowa. This puzzle comprises a circular board, in the glass covered top of which channelled letters are supported and adapted to be moved into different positions by means of a pointer inserted in openings at the sides, there being also used in connection with the letters sixteen silver colored balls and one gold colored ball. Some of the channels in the letters are closed and some of them are open, and a puzzle is thus made which is designed to call for considerable skill in properly solving it.

STOVE SCRAPER AND BRUSH.—William J. Crutcher, Logan, West Va. To facilitate drawing the dust, ashes and soot from the flues of a stove, this invention provides a special form of adjustable brush, whose plane may be conveniently changed for insertion flatwise through a slot in the stove and then turned to a position at right angles, whereby it not only presents a broad surface like a hoe to make a scraper, but is armed with bristles along its edge to thoroughly clean the walls of the flue and sweep out the accumulated deposits.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS, ETC.

SMITHSONIAN MISCELLANEOUS COLLECTIONS, 1038. Smithsonian Physical Tables. Prepared by Thomas Gray. City of Washington: Published by the Smithsonian Institution. 1896. Pp. xxxiv, 301.

We cannot characterize this extensive series of over 300 tables by any treatment adequately expressing its completeness. They are due to Prof. Thomas Gray, of the Rose Polytechnic Institute, Terre Haute, Ind. It is questionable if the Smithsonian Institution ever contributed a work of greater merit and of more immediate use, one which will be in more constant use by any one ever having occasion to employ scientific data. Our only excuse for not reviewing it thoroughly must be that it does not lend itself to such review. We give it our warmest commendation. The ground covered includes conversion factors for every imaginable class of data, including nearly forty tables; values of logarithms of physical and electrical constants, and complex factors, wire data for different metals, strength of materials, gases, specific gravities, velocities of sound, gravity determinations, terrestrial magnetism, and any quantity of other matter, in 315 tables. The introduction is devoted to preliminary definitions and in itself is worthy of every commendation, its clearness of statement and ground covered making it an admirable refresher for one whose general physics need a little reviving. As an example of a definition, we would refer to that given on page xxi, for force, as specially indicative of the value of the author's work.

SMITHSONIAN MISCELLANEOUS COLLECTIONS, 1075. The Constants of Nature. Part V. A Recalculation of the Atomic Weights. By Frank Wigglesworth Clarke. New edition. Revised and enlarged. City of Washington: Published by the Smithsonian Institution. 1897. Pp. vi, 370.

In line with the above is Prof. Clarke's exhaustive contribution to our knowledge of atomic weights. It is

an excellent model of the best work of the modern chemist, and is now the authoritative treatise on its subject. The amount of labor which the compilation represents is very great; it is something which can only be appreciated by the scientific writer. It was as early as 1877 that Prof. Clarke, who is chemist of the United States Geological Survey, began his work on atomic weights, and during the next few years various treatises appeared, so that at last the present volume was determined on and was issued. This final table for practical use is especially interesting, two sets of figures being given, one for H=1 (or oxygen=15.88); the other for H=16 (or H=1.008).

SIXTEENTH ANNUAL REPORT OF THE UNITED STATES GEOLOGICAL SURVEY TO THE SECRETARY OF THE INTERIOR, 1894-5. Charles D. Walcott, Director. In four parts. Part I. Director's report and papers of a theoretic nature. Washington: Government Printing Office. 1896. Pp. xxii, 910.

This volume of monographs is an admirable example of the work which the United States Geological Survey is doing. It contains, in addition to the general report of the director, in which the detail work of the year is treated, monographs on geological subjects, such as Glacier Bay, Muir Glacier, the Dinosaurs of North America, and the Pre-Cambrian rocks in America, the flow and fracture of rocks, the latter especially interesting because a general subject. The making of the book is expensive; it is a most beautiful piece of printing. Almost the only suggestion we would make would be that the illustrations in some cases seem hardly good enough for the sumptuous make-up of the rest. This, however, must not be accepted as a criticism on the illustrations. It is rather a testimony to the rest. It would seem hard to believe that any department of the government is doing better work than that indicated by the volume under consideration.

NOTES ON ASSAYING. By Pierre de Peyster Ricketts and Edmund H. Miller. First edition, first thousand. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1897. Pp. viii, 311. Price \$3.

Dr. Ricketts' work on assaying has been known to many successive classes in assaying courses, especially to students of Columbia University. The present work is a vast improvement on the previous work by the same author. A very extensive index and numerous tables, the treatises on blow-piping and on the sampling of ores and the preparation of the same for the assayer extending its value very largely. Of course, to the Columbia University student it is a sine qua non; to others it will be found of interest and value. In some respects we should have been glad to find it more exact. Thus the calculation for silver and gold ratio, nominally 1:16, is really about 1:15.98, but the first and popular rendering is given by the author. Then in the hardness series, as No. 8, there is given the mineral "ruby (spinel)." Everyone who thinks of the ruby almost always thinks of the corundum ruby, although of course both terminologies are correct. As a matter of preference, we should have preferred to see the term ruby used for No. 9, instead of sapphire. To those who want to do assaying we warmly commend the work as thoroughly practical.

THE MATERIALS OF CONSTRUCTION. A treatise for engineers on the strength of engineering materials. By J. B. Johnson, C. E. First edition, first thousand. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1897. Pp. 771. Price \$6.

The author is professor of civil engineering in Washington University, St. Louis, Mo., and for a long time has been recognized as an authority upon engineering, and especially on that branch of engineering which forms the subject of the present work. The value of data concerning the strength of materials was recognized away back in the fifteenth century, by Leonardo da Vinci, but the germ of the science remained latent until the present century. The materials of construction and the rational testing of them may be regarded as one of the most important functions of the engineer, as upon them rest very largely the success or failure of the vast constructions which often involve millions of property and hundreds of lives. The author offers to his readers a condensed and concise summary of such portions of the subject as he found suitable for such a work. It is arranged so that it may be used both as a text book for the student and a manual for the engineer. The general nature of the formation of stresses is taken up, together with the various varieties of such stresses. The manufacture and general properties of materials of construction are next considered, with chapters on cast iron, wrought iron, steel, cement, brick, timber, etc. Great attention is given to testing machines and the means of testing the materials of construction. This section of the work is of special value. The third part takes up the mechanical properties of the materials of construction as revealed by actual tests. The book is illustrated with 635 engravings and diagrams in addition to 11 plates. It can be commended as a thoroughly scientific treatise on a very important subject.

Marine Engineering is a new periodical published by the Marine Publishing Company, World Building, New York City. The first number of this new paper has just come to hand. It has been thought for a long time there was a good opening for a high class monthly devoted to marine engineering, with special reference to American shipbuilding. The first number is a very creditable example of trade journalism. It is illustrated with half tones and line drawings. The subscription price is \$2.

The American Bakers' and Confectioners' Journal is published at 500 Pearl Street, New York City, and is devoted to everything regarding the bakery and confectionery business which is likely to be of even passing interest. The larger part of retailers in the bakery and confectioners' trade are Germans and the paper is printed in both English and German. The subscription price is \$1.50 per annum.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

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The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.

Wanted partner to pay for foreign patents on an entirely new system of electrical telegraphy on which a U. S. patent has been allowed. Address S. de Jager, M. D., Paterson, New Jersey.

The Temperly Transporter. See illustration, front page of SCIENTIFIC AMERICAN, April 24. It is manufactured by the Lidgerwood Mfg. Co., 96 Liberty Street, New York. Write for particulars.

Wanted.—Mechanical engineer, understanding Spanish, and familiar with sugar machinery, to visit Spanish-American countries and solicit orders for manufacturer. Address with references, X. Y. Z., care Letter Carrier 23, Buffalo, N. Y.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.



HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.
References to former articles or answers should give date of paper and page or number of question.
Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all either by letter or in this department, each must take his turn.
Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.
Scientific American Supplements referred to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(7164) O. L. O. asks: 1. Can an arc light dynamo be used for depositing metal in electrotyping?
A. It cannot be used as specified, except at the greatest disadvantage. The current is small and resistance high.
2. Can a current, either incandescent or arc, be so used direct from a line or circuit (I mean from the light wires in the cities) without any further use of another dynamo?
A. The same is to be said for this case. The incandescent current can be used to operate a motor, and the latter can drive a static dynamo.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

MAY 25, 1897.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

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